

ABSTRACT

The present invention relates to a method of depositing a crystalline α - Al_2O_3 -layer onto a cutting tool insert by Chemical Vapor Deposition at a temperature of from about 625 to about 800 °C. The method comprises the following steps:

depositing a from about 0.1 to about 1.5 μm layer of $\text{TiC}_x\text{N}_y\text{O}_z$ where $x+y+z=1$ and $z>0$, preferably $z>0.2$;

treating said layer at 625-1000 °C in a gas mixture containing from about 0.5 to about 3 vol-% O_2 , preferably as $\text{CO}_2 + \text{H}_2$ or $\text{O}_2 + \text{H}_2$, for a short period of time from about 0.5 to about 4 min, optionally in the presence of from about 0.5 to about 6 vol-% HCl ; and

depositing said Al_2O_3 -layer by bringing said treated layer into contact with a gas mixture containing from about 2 to about 10 vol-% of AlCl_3 , from about 16 to about 40 vol-% of CO_2 , in H_2 and 0.8-2 vol-% of a sulphur-containing agent, preferably H_2S , at a process pressure of from about 40 to about 300 mbar. The invention also includes a cutting tool insert with a coating including at least one α - Al_2O_3 -layer according to the invention.